

Ozturan KE, Yecel I, et al. Autologous Blood and Corticosteroid Injection and Extracorporeal Shock Wave Therapy in the Treatment of Lateral Epicondylitis. Orthopedics 2010;22:84.

Design: Randomized clinical trial

Population/sample size/setting:

- 57 patients (32 women, 25 men, mean age 46) who completed treatment for lateral epicondylitis (LE) at a university orthopedics department in Turkey
- Inclusion criteria were age over 18, at least 6 months of LE symptoms, tenderness on palpation of the lateral epicondyle, and pain of at least 50 points on a 100 point VAS
- Exclusion criteria were pregnancy, local steroid injection for LE in the past 3 months, NSAID in the past week, cervical spondylosis, elbow arthritis on x-ray, previous surgery to the elbow, systemic illness, or nerve entrapment of the upper extremity (CTS, cubital or radial nerve)

Main outcome measures:

- 60 patients started the study; they were randomized into 3 groups of 20 patients each: corticosteroid injection, autologous blood injection, or extracorporeal shock wave treatment (ESWT)
- 3 main outcomes were assessed at baseline, 4, 12, 26, and 52 weeks: Thomsen provocative pain test (pain with resisted extension of the wrist), upper extremity function score, and maximal grip strength
- Definition of “successful result” was a 50% reduction in pain with Thomsen test
- Steroid group received a single injection of 1 ml methylprednisolone acetate (40 mg/ml or 80 mg/ml not specified)
- Autologous whole blood group had blood drawn from antecubital fossa of the uninvolved arm; this was injected into the involved elbow with the same technique as for the steroid injection (neither group had ultrasound guidance)
- ESWT was delivered once a week for 3 weeks with 2000 impulses at 0.17 mJ/square mm
- At 6 weeks, the Thomsen test was used to decide which patients would receive a second injection; if the reduction was less than 50%, a second injection was given
- 2 of the steroid group had a second injection at 6 weeks; 14 patients in the autologous blood group received a second injection at 6 weeks
- A pattern was seen in the follow-up results: at the 4 week evaluation, the steroid group showed a significantly better improvement in functional score, in the Thomsen test, and in grip strength; at 12 weeks, the groups were approximately equal, and at 26 and 52 weeks, the steroid group had regressed while the autologous blood and the ESWT groups had progressed
- At 52 weeks, the ESWT and autologous blood groups did not differ statistically, but both groups were superior to the steroid group

- All patients had some temporary pain (most resolved within 2 days) after the initial treatment; this was treated successfully with acetaminophen for 24 to 48 hours

Authors' conclusions:

- The success rate of steroid injection was less than for whole blood injection and ESWT at 52 weeks
- The steroid group had more manual workers than the other 2 groups (7 heavy workers in the steroid group, 3 in the whole blood group, and 2 in the ESWT group); this may account for some of the difference in outcome
- Autologous whole blood is just as effective as ESWT and is less expensive; autologous whole blood injection should be considered to be the preferred treatment modality for LE

Comments:

- The original study plan appears to have been for the injection groups to have single injections, but most of the autologous whole blood group had not improved at 6 weeks and received a second injection
- Method of randomization is not clearly stated
- The dose of steroid was not given (Depo-Medrol comes in 40 and 80mg/ml)
- It appears that the injection groups were not blinded (blood was not drawn from the patients in the whole blood group as was done for a study in which platelet-rich plasma was the study intervention)
- The pattern seen with other studies of steroid injection is repeated in this study: initial improvement which is not sustained past the initial evaluation
- Pertinent functional scores (daily hand activities) were appropriately used and had results which were similar to the Thomsen test, which was selected as the primary outcome; this does not undermine the conclusions of the study but the functional scale is of greater interest for the guideline

Assessment: Adequate for an evidence statement that autologous whole blood and ESWT are superior to steroid injection past 6 months of treatment, but that a second injection of whole blood is frequently required